

Project Investment Justification

Electronic Case Reporting (eCR)

HS20014

Department of Health Services

Contents

1. General Information	2
2. Meeting Pre-Work	2
3. Pre-PIJ/Assessment	4
4. Project	4
5. Schedule	5
6. Impact	7
7. Budget	7
8. Technology	8
9. Security	11
10. Areas of Impact	12
11. Financials	14
12. Project Success	15
13. Conditions	15
14. Oversight Summary	15
15. PIJ Review Checklist	16

1. GENERAL INFORMATION

PIJ ID: HS20014

PIJ Name: Electronic Case Reporting (eCR)

Account: Department of Health Services

Business Unit Requesting: ADHS - Public Health Services Preparedness

Sponsor: Jessica Rigler

Sponsor Title: Assistant Director, Public Health Preparedness

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Sponsor Phone: (602) 364-3909

2. MEETING PRE-WORK

2.1 What is the operational issue or business need that the Agency is trying to solve? (i.e....current process is manual, which increases resource time/costs to the State/Agency, and leads to errors...):

ADHS receives communicable disease reports for a number of different conditions and syndromes from healthcare providers, facilities, and laboratories per AZ administrative code. These reports are received through a variety of methods, including fax, phone, emails, or direct duplicative entry by users into the integrated system, the Medical Electronic Disease Surveillance Intelligence System (MEDSIS). ADHS staff is manually entering the reports they are received by phone, fax, and email into MEDSIS.

In order to reduce the reporting burden, ADHS is proposing a partnership with the vendor Health Current using their state health information exchange (HIE), to provide support for the implementation case reporting. The HIE currently receives over 90% of admit, discharge, and transfer data (ADT) from over 90% of Arizona healthcare providers in the State of Arizona, including the large major hospital networks. Health Current will work with ADHS to develop Health Current's data currently housed in the HIE system, to a standardized HL7 message (CDA or FHIR) and transmit that data to public health on behalf of healthcare facilities. HL7 codes are used globally as the standard health data format. As a parallel project, ADHS will also begin an assessment and business requirements gathering to automatically process these new HL7 message types for routing and consumption into the appropriate downstream surveillance systems.

2.2 How will solving this issue or addressing this need benefit the State or the Agency?

This project will reduce the manual and duplicative entry process by healthcare facilities, provider officers, and ADHS, as well as reduce the time required for staff to route paper records to the appropriate program areas and divisions, and improve overall data quality and timeliness of reports received by the Arizona Department of Health Service.

Any communicable disease reports that are received by ADHS via fax or secure email require data entry staff time to enter the data into the integrated disease surveillance systems. Depending on the volume of reports received, ADHS may add contracted data entry staff or reassign other staff in order to enter reports into respective systems (goal is to enter within 24 hours of receipt). After reports are entered into the systems, they are then shared with local public health departments to initiate case investigation and contact tracing efforts, if needed, and implement public health control measures to prevent further spread. If there is a delay in entry into the systems, there is an inherent delay in possible mitigation strategies, leading to potentially high rates of illness and further spread.

The two proposed parallel projects will allow for a large majority of these processes to be automated for healthcare data submitter's as well as ADHS, reducing the overall need for manual data entry. In turn, this reduces the error rate that may occur through manual data entry processes, allows for additional data quality and validations, and increases the timeliness of reporting and response activities.

Additionally, since ADHS is planning on utilizing a national platform, AIMS, there is a possibility that any out of state residents that are treated or tested for a reportable condition would also be automatically sent to the state of residence, reducing the need to send manual out of state reports via fax.

With this new automated ECR process in place the manual process is expected to be reduced by 90% and should take less than 24 hours for The Department of Health Services to receive information about reportable case diagnosis depending on when the health provider enters the information. With this process in place health care providers will have the ability to be in compliance with the State Mandates to provide this information to ADHS within reportable timelines depending on the condition (the type of disease). In calendar year 2019, ADHS received over 240,000 communicable disease reports, requiring over 40,000 hours of manual processing (data entry, report review, and redaction), costing roughly over 1 million dollars.

2.3 Describe the proposed solution to this business need.

ADHS will contract with Health Current to identify that the data currently received by the HIE (via ADT messages) will be transformed into a HL7, CDA, or FHIR message format which meets the global requirements for a communicable disease report, thus centralizing a majority of communicable disease reporting through a single entity and providing the IT support that the healthcare facilities and providers often need. The HIE messages will be routed through a national platform, AIMS (hosted by the Association of Public Health Laboratories), and will take advantage of a shared trigger code table and state-specific reporting specifications.

Once the file is received by ADHS, the process will assign the condition and parse the data contained in the HL7 message into readable and standard tables. These tables will send the information on to the appropriate surveillance systems, based on the condition, where they can be consumed and used to automatically attach to existing cases or initiate a new case that is transferred to the local public health department for further investigation.

2.4 Has the existing technology environment, into which the proposed solution will be implemented, been documented?

Yes

2.4a Please describe the existing technology environment into which the proposed solution will be implemented.

2.5 Have the business requirements been gathered, along with any technology requirements that have been identified?

Yes

2.5a Please explain below why the requirements are not available.

DHS is currently working on the project funding, and solution feasibility with Health Current. The basic underlying process requirements are the same. Only the data sources, formats and processing methodology will change. At some point soon a project plan and detailed requirements document covering all aspects of the project will be put together.

3. PRE-PIJ/ASSESSMENT

3.1 Are you submitting this as a Pre-PIJ in order to issue a Request for Proposal (RFP) to evaluate options and select a solution that meets the project requirements?

No

3.1a Is the final Statement of Work (SOW) for the RFP available for review?

3.2 Will you be completing an assessment/Pilot/RFP phase, i.e. an evaluation by a vendor, 3rd party or your agency, of the current state, needs, & desired future state, in order to determine the cost, effort, approach and/or feasibility of a project?

No

3.2a Describe the reason for completing the assessment/pilot/RFP and the expected deliverables.

3.2b Provide the estimated cost, if any, to conduct the assessment phase and/or Pilot and/or RFP/solicitation process.

3.2e Based on research to date, provide a high-level cost estimate to implement the final solution.

4. PROJECT

4.1 Does your agency have a formal project methodology in place?

Yes

4.2 Describe the high level makeup and roles/responsibilities of the Agency, Vendor(s) and other third parties (i.e. agency will do...vendor will do...third party will do).

DHS Staff (FTE/Contract):

- Contract Oversight
- Project Management
- Program Resources (SME's)
- Techno/Functional Project Management
- HL7/CDA Functional Specialist
- Technical Development and Support
- Network, Systems and Database Administration

Health Current Resources (Vendor):

- Project Management
- Functional Specialist
- Technical Development
- Submitter Recruitment and Coordination

4.3 Will a PM be assigned to manage the project, regardless of whether internal or vendor provided?

Yes

4.3a If the PM is credentialed, e.g., PMP, CPM, State certification etc., please provide certification information.

4.4 Is the proposed procurement the result of an RFP solicitation process?

No

4.5 Is this project referenced in your agency's Strategic IT Plan?

Yes

5. SCHEDULE

5.1 Is a project plan available that reflects the estimated Start Date and End Date of the project, and the supporting Milestones of the project?

Yes

5.2 Provide an estimated start and finish date for implementing the proposed solution.

Est. Implementation Start Date

Est. Implementation End Date

9/1/2020 12:00:00 AM

3/31/2022 12:00:00 AM

5.3 How were the start and end dates determined?

Based on funding

5.3a List the expected high level project tasks/milestones of the project, e.g., acquire new web server, develop software interfaces, deploy new application, production go live, and estimate start/finish dates for each, if known.

Milestone / Task	Estimated Start Date	Estimated Finish Date
Phase 1: Pilot Program/Proof Of Concept Milestone 1. Hospital Project Kick-Off - Pilot Milestone 2. Hospital e-case data feed established w/Health Current - Pilot Milestone 3. ADHS e-case data feed established w/MEDSIS - Pilot *Work plan attached	09/01/20	05/31/21
1. Hospital Project Kick-Off (Phase 1 Pilot)	09/01/20	10/30/20
2. Hospital e-case data feed established w/ Health Current (Phase 1-Pilot)	11/01/20	05/30/21
3. ADHS e-case data feed established w/ MEDSIS (Phase 1-Pilot)	11/01/20	05/31/21
Phase II: Onboard Hospitals Milestone 1. Hospital Project Kick-Off - Onboard Milestone 2. Hospital e-case data feed established w/ HIE - Onboard Milestone 3. ADHS e-case data feed established w/ MEDSIS - Onboard *Work plan attached	06/01/21	03/31/22
5. Hospital e-case data feed established w/ Health Current (Phase 2 On boarding)	06/01/21	05/31/22
4. Hospital Project Kick-Off (Phase 2 On Boarding)	06/01/21	03/31/22
6. ADHS e-case data feed established w/ MEDSIS (Phase 2-On Boarding)	06/01/21	03/31/22

5.4 Have steps needed to roll-out to all impacted parties been incorporated, e.g. communications, planned outages, deployment plan?

No

5.5 Will any physical infrastructure improvements be required prior to the implementation of the proposed solution. e.g., building reconstruction, cabling, etc.?

No

5.5a Does the PIJ include the facilities costs associated with construction?

5.5b Does the project plan reflect the timeline associated with completing the construction?

6. IMPACT

6.1 Are there any known resource availability conflicts that could impact the project?

Yes

6.1a Have the identified conflicts been taken into account in the project plan?

Yes

6.2 Does your schedule have dependencies on any other projects or procurements?

Yes

6.2a Please identify the projects or procurements.

ADHS COVID-19 Emergency Response projects/tasks may push the timeline of this project back if identified project resources are diverted.

6.3 Will the implementation involve major end user view or functionality changes?

No

6.4 Will the proposed solution result in a change to a public-facing application or system?

No

7. BUDGET

7.1 Is a detailed project budget reflecting all of the up-front/startup costs to implement the project available, e.g., hardware, initial software licenses, training, taxes, P&OS, etc.?

Yes

7.2 Have the ongoing support costs for sustaining the proposed solution over a 5-year lifecycle, once the project is complete, been determined, e.g., ongoing vendor hosting costs, annual maintenance and support not acquired upfront, etc.?

Yes

7.3 Have all required funding sources for the project and ongoing support costs been identified?

Yes

7.4 Will the funding for this project expire on a specific date, regardless of project timelines?

Yes

7.5 Will the funding allocated for this project include any contingency, in the event of cost over-runs or potential changes in scope?

Yes

8. TECHNOLOGY

8.1 Please indicate whether a statewide enterprise solution will be used or select the primary reason for not choosing an enterprise solution.

Other (please specify)

8.2 Will the technology and all required services be acquired off existing State contract(s)?

Yes

8.3 Will any software be acquired through the current State value-added reseller contract?

Yes

8.3a Describe how the software was selected below:

Additional licenses of the current products that are used for ELR Integration Engine.

8.4 Does the project involve technology that is new and/or unfamiliar to your agency, e.g., software tool never used before, virtualized server environment?

No

8.5 Does your agency have experience with the vendor (if known)?

Yes

8.6 Does the vendor (if known) have professional experience with similar projects?

Yes

8.7 Does the project involve any coordination across multiple vendors?

No

8.8 Does this project require multiple system interfaces, e.g., APIs, data exchange with other external application systems/agencies or other internal systems/divisions?

Yes

8.9 Have any compatibility issues been identified between the proposed solution and the existing environment, e.g., upgrade to server needed before new COTS solution can be installed?

Yes

8.9a Describe below the issues that were identified and how they have been/will be resolved, or whether an ADOA-ASET representative should contact you.

The current end to end ELR solution is on AWS Infrastructure. The new proposed solution will also be hosted on AWS infrastructure but on all new Infrastructure. This has been decided so as to not affect the current solution and create a parallel solution until the new solution is completely deployed.

8.10 Will a migration/conversion step be required, i.e., data extract, transformation and load?

No

8.11 Is this replacing an existing solution?

No

8.11a Indicate below when the solution being replaced was originally acquired.

The existing ELR system/process has been in service since 2006.

8.11b Describe the planned disposition of the existing technology below, e.g., surplus, retired, used as backup, used for another purpose:

All current system infrastructure is hosted on AWS cloud environment. The existing technology stack will be retired and removed when the new system is completely operation and replaces the current system.

8.12 Describe how the agency determined the quantities reflected in the PIJ, e.g., number of hours of P&OS, disk capacity required, number of licenses, etc. for the proposed solution?

Based on the information of the current ELR System/Process and additional work that needs to go in to complete the new process

8.13 Does the proposed solution and associated costs reflect any assumptions regarding projected growth, e.g., more users over time, increases in the amount of data to be stored over 5 years?

Yes

8.14 Does the proposed solution and associated costs include failover and disaster recovery contingencies?

No

8.14a Please select why failover and disaster recovery is not included in the proposed solution.

Other

8.15 Will the vendor need to configure the proposed solution for use by your agency?

No

8.15a Are the costs associated with that configuration included in the PIJ financials?

8.16 Will any app dev or customization of the proposed solution be required for the agency to use the project in the current/planned tech environment, e.g. a COTS app that will req custom programming, an agency app that will be entirely custom developed?

Yes

8.16a Will the customizations inhibit the ability to implement regular product updates, or to move to future versions?

No

8.16b Describe who will be customizing the solution below:

ADHS Development Resources (FTE and Contract Resources)

8.16c Do the resources that will be customizing the application have experience with the technology platform being used, e.g., .NET, Java, Drupal?

Yes

8.16d Please select the application development methodology that will be used:

Agile/Scrum

8.16e Provide an estimate of the amount of customized development required, e.g., 25% for a COTS application, 100% for pure custom development, and describe how that estimate was determined below:

100% Custom system/process. Not all development is from scratch as the current solution will be used as baseline and enhanced.

8.16f Are any/all Professional & Outside Services costs associated with the customized development included in the PIJ financials?

Yes

8.17 Have you determined that this project is in compliance with all applicable statutes, regulations, policies, standards & procedures, incl. those for network, security, platform, software/application &/or data/info found at aset.az.gov/resources/psp?

Yes

8.17a Describe below the compliance issues that were identified and how they have been/will be resolved, or whether an ADOA-ASET representative should contact you:

8.18 Are there other high risk project issues that have not been identified as part of this PIJ?

Yes

8.18a Please explain all unidentified high risk project issues below:

-- Availability of resources with specific skills required for this project

9. SECURITY

9.1 Will the proposed solution be vendor-hosted?

Yes

9.1a Please select from the following vendor-hosted options:

Commercial data center environment, e.g AWS, Azure

9.1b Describe the rationale for selecting the vendor-hosted option below:

Most of ADHS applications/systems are hosted on AWS Cloud

9.1c Has the agency been able to confirm the long-term viability of the vendor hosted environment?

Yes

9.1d Has the agency addressed contract termination contingencies, e.g., solution ownership, data ownership, application portability, migration plans upon contract/support termination?

Yes

9.1e Has a Conceptual Design/Network Diagram been provided and reviewed by ASET-SPR?

Yes

9.1f Has the spreadsheet located at <https://aset.az.gov/arizona-baseline-security-controls-excel> already been completed by the vendor and approved by ASET-SPR?

Yes

9.2 Will the proposed solution be hosted on-premise in a state agency?

No

9.2a Where will the on-premise solution be located:

9.2b Were vendor-hosted options available and reviewed?

9.2c Describe the rationale for selecting an on-premise option below:

9.2d Will any data be transmitted into or out of the agency's on-premise environment or the State Data Center?

9.3 Will any PII, PHI, CGIS, or other Protected Information as defined in the 8110 Statewide Data Classification Policy be transmitted, stored, or processed with this project?

Yes

9.3a Describe below what security infrastructure/controls are/will be put in place to safeguard this data:

All Security controls currently in place for ADHS Assets, Data, and Access will be implemented

10. AREAS OF IMPACT

Application Systems

Other

New eCR system/process development

Database Systems

MS SQL Server

Software

Other

Rhapsody Integration Engine, SFTP, MS SQL Server DB, Custom processes

Hardware

Other

New AWS Infrastructure setup

Hosted Solution (Cloud Implementation)

AWS (non-government) cloud

Security

Other

Data at rest encryption

Telecommunications

Enterprise Solutions

The existing ELR solution in place at DHS will be used/enhanced to process the data. The majority of changes for the eCR project are in the formats of the data that we will receive in future and from where we are receiving it.

Contract Services/Procurements

11. FINANCIALS

Description	PIJ Category	Cost Type	Fiscal Year Spend	Quantity	Unit Cost	Extended Cost	Tax Rate	Tax	Total Cost
Hardware Costs - AWS and laptops	Hardware	Development	1	1	\$71,000	\$71,000	860.00 %	\$6,106	\$77,106
Contractual	Professional & Outside Services	Development	1	1	\$1,005,000	\$1,005,000	0.00 %	\$0	\$1,005,000
Software Licenses	Software	Development	1	1	\$35,000	\$35,000	860.00 %	\$3,010	\$38,010
Contractual	Professional & Outside Services	Development	2	1	\$3,045,000	\$3,045,000	0.00 %	\$0	\$3,045,000
Hardware Costs-Yearly Pmt	Hardware	Development	2	1	\$62,000	\$62,000	860.00 %	\$5,332	\$67,332
Software Licenses	Software	Development	2	1	\$10,000	\$10,000	860.00 %	\$860	\$10,860
Hardware Costs-Yearly Pmt	Hardware	Operational	3	1	\$62,000	\$62,000	860.00 %	\$5,332	\$67,332
Software Licenses	Software	Operational	3	1	\$6,000	\$6,000	860.00 %	\$516	\$6,516
AWS Hardware cost - Yearly Pmt	Hardware	Operational	4	1	\$62,000	\$62,000	860.00 %	\$5,332	\$67,332
Software licenses	Software	Operational	4	1	\$6,000	\$6,000	860.00 %	\$516	\$6,516
Hardware Costs-Yearly Pmt	Hardware	Operational	5	1	\$62,000	\$62,000	860.00 %	\$5,332	\$67,332
Software Licenses	Software	Operational	5	1	\$6,000	\$6,000	860.00 %	\$516	\$6,516

Base Budget (Available)	Base Budget (To Be Req)	Base Budget % of Project
\$0	\$0	0%
APF (Available)	APF (To Be Req)	APF % of Project
\$0	\$0	0%
Other Appropriated (Available)	Other Appropriated (To Be Req)	Other Appropriated % of Project
\$0	\$0	0%
Federal (Available)	Federal (To Be Req)	Federal % of Project
\$4,464,852	\$0	100%
Other Non-Appropriated (Available)	Other Non-Appropriated (To Be Req)	Other Non-Appropriated % of Project
\$0	\$0	0%

Total Budget Available	Total Development Cost
\$4,464,852	\$4,243,308
Total Budget To Be Req	Total Operational Cost
\$0	\$221,544
Total Budget	Total Cost
\$4,464,852	\$4,464,852

12. PROJECT SUCCESS

Please specify what performance indicator(s) will be referenced in determining the success of the proposed project (e.g. increased productivity, improved customer service, etc.)? (A minimum of one performance indicator must be specified)

Please provide the performance objective as a quantifiable metric for each performance indicator specified.

Note: The performance objective should provide the current performance level, the performance goal, and the time period within which that performance goal is intended to be achieved. You should have an auditable means to measure and take corrective action to address any deviations.

Example: Within 6 months of project completion, the agency would hope to increase "Neighborhood Beautification" program registration by 20% (3,986 registrants) from the current registration count of 19,930 active participants.

Performance Indicators

- Real time case reporting
- Increased automation in case reporting
- Decrease in agency resource costs
- Increase in data accuracy by automation and systems validations (and reduction in manual case data entry)

13. CONDITIONS

Conditions for Approval

Should development costs exceed the approved estimates by 10% or more, or should there be significant changes to the proposed technology scope of work or implementation schedule, the Agency must amend the PIJ to reflect the changes and submit it to ADOA-ASET, and ITAC if required, for review and approval prior to further expenditure of funds.

14. OVERSIGHT SUMMARY

Project Background

DHS Bureau of Epidemiology and Disease Control receives case reports (medical records) from medical providers such as hospitals, schools, clinics, and any other medical facility through the MEDSIS application, email, and fax. MEDSIS is a disease surveillance application that has fillable fields for medical providers to provide information on diseases. If a medical provider is unable to use the MEDSIS application, they can print a PDF to fill information then scan or fax to ADHS. ADHS has data entry staff who enter information from the PDF forms into MEDSIS. The manual process time and manpower varies depending on a cycle of diseases, epidemics, and flu seasons. Currently the COVID-19 pandemic has increased the volume of manual entry into MEDSIS for ADHS and medical providers. Manual entry previously was estimated to be about 2,000 cases entered daily, and currently ADHS is estimating about 30,000 cases are being manually entered daily.

Health Current is a health information exchange system (Mirth system) that gets data from health providers' EHR (Electronic Health Record) systems and the two systems exchange data automatically. Health Current validates and transforms the case report data from medical providers and submits the information to ADHS in a standard HL7 format (Health Level 7 = standard format based on Arizona Message Mapping Guide) which removes data that is not essential and will input essential data in specific fields as required.

ADHS needs an integration engine that will decode, validate and parse the information from the Health Current system in order to consume the data into multiple disease surveillance systems based on the type of disease.

Business Justification

The Arizona Department of Health Service has been at the forefront of Electronic Public Health reporting over the past 14 years, specifically the Electronic Lab Reporting system, and is revered as one of the best if not the best in the country according to the CDC. This new automated Electronic Case Reporting (ECR) process will improve the timeliness of case reporting and a reduction in manual efforts across the state. Additionally the system being developed will assist in a number of healthcare facilities that are not reporting due to either not having an Electronic Health Record system (EHR) available to them or do not have the resources and time to enter in the information into a duplicative system currently in place.

FY2019 ELR data breakdown numbers are much higher this year compared to the Non-ELR submissions in FY2019 resulting in ADHS being forced to onboard additional labs in order to accommodate the COVID-19 pandemic response. Also an important distinction between the ELR and eCR process automation is that ELR is a one to one connection for automation between ADHS and the submitting Lab. Whereas the eCR will be a single connection between ADHS and Health Current (HIE). This major technological advancement will save on the current resources that are working with all state labs for onboarding, validations, technical setup and configuration, training and support all the time. At some point in the near future, after the successful launch of the eCR automation, ADHS can take advantage of changing the current ELR process to also come through Health Current, realizing additional cost saving and centralized reporting.

Implementation Plan

Agency will be responsible for contract oversight of the project, overall project management, providing program resources (SME's) and techno/functional project management.

The vendor Health Current Resources will be responsible for project management, development/validation and Health Care Provider recruitment and coordination.

Vendor Selection

Health Current is the only Health information Exchange in Arizona and a Sole Source capable of providing the Case Report data as they already have the tie-in's (opt in) with 90% of the Health Care Providers in Arizona. Other options for HIE systems would require a costly custom development requiring additional funding that is not available to ADHS. Additionally ADHS would have to recruit, validate, onboard, and train all Health Care providers in the State of Arizona.

Budget or Funding Considerations

This project is 100% Federally funded from the CARES ACT.

15. PIJ REVIEW CHECKLIST

Agency Project Sponsor

Jessica Rigler

Agency CIO (or Designee)

Paula Mattingly

Agency ISO (or designee)

John Stark

OSPB Representative

ASET Engagement Manager
Haley Greenburg

ASET SPR Representative

Agency SPO Representative
Christine Ruth

Agency CFO
Justin Lepley